

PreAlgebra MATH 302

Final Exam

① $|-20| = \boxed{20}$

② $-25 + \underline{(-4)} + \underline{(-2)} + \underline{(-6)}$
 $-25 - 4 - 2 - 6 =$
 $\boxed{-37}$

$$\begin{array}{r} 25 \\ 4 \\ 2 \\ 6 \\ \hline 37 \end{array}$$

③ $-147 - \underline{(-85)}$
 $-147 + 85 = \boxed{-62}$

$$\begin{array}{r} 147 \\ - 85 \\ \hline 62 \end{array}$$

④ $4(-1)(10)(-5) = +\boxed{200}$

$$4 \times 5 = 20$$

⑤ $-\frac{15}{0}$ - undefined

⑥ $\frac{0}{23} = 0$

⑦ $(-72) \div (-9) = +\boxed{8}$

⑧ $3 + \underline{12 \div 3} - 10 =$
 $3 + 4 - 10 = 7 - 10$
 $= \boxed{-3}$

P
E
MSD
AJS

$$\textcircled{9} \quad \frac{2 + 4^2 - (-2)}{-8 - 3 + 10}$$

P
E
M&D
A5S

$$\frac{2 + 16 + 2}{-8 - 3 + 10} = \frac{20}{-1} = \boxed{-20}$$

$$\textcircled{10} \quad \underline{8^2} - \underline{5(4)} + \underline{21 \div 3}$$

$$64 - 20 + 7$$

$$44 + 7 = \boxed{51}$$

$$\textcircled{11} \quad \text{Evaluate: } \frac{x^2 - 5}{y}$$

$$x = -3 ; y = -2$$

$$\frac{(-3)^2 - 5}{(-2)} = \frac{9 - 5}{-2}$$

$$= \frac{4}{-2} = \boxed{-2}$$

$$\left| \begin{array}{l} -3^2 = -3 \cdot 3 = -9 \\ (-3)^2 = (-3)(-3) = 9 \end{array} \right.$$

$$\textcircled{12} \quad \text{Solve:}$$

$$\underline{2x} - 7 + \underline{9x} + \underline{4x} = 5x + 2$$

$$15x - 7 = 5x + 2$$

$$15x - 5x - 7 = \cancel{5x} - \cancel{5x} + 2$$

$$10x - 7 = 2$$

$$10x - 7 + 7 = 2 + 7$$

$$10x = 9$$

$$\boxed{x = \frac{9}{10}}$$

Distribute
Combine
Isolate
Combine
Divide

$$\textcircled{12} \quad \underline{2x} - 7 + \underline{9x} - 8 + \underline{4x} = 5x + 2$$

$$15x - 15 = 5x + 2$$

$$15x - 5x - 15 = \cancel{5x} - \cancel{5x} + 2$$

$$10x - 15 = 2$$

$$10x - 15 + 15 = 2 + 15$$

$$10x = 17$$

$$x = \boxed{\frac{17}{10}} = \boxed{1\frac{7}{10}}$$

$$\textcircled{13} \quad \left(\frac{-3}{2}\right) \left(-\frac{2}{3}\right)x = 6\left(-\frac{3}{2}\right)$$

$$x = -\frac{6 \cdot 3}{2}$$

$$\boxed{x = -9}$$

Check!

$$\textcircled{14} \quad -4x + (-3x) = -56$$

$$-4x - 3x = -56$$

$$\frac{-7x}{-7} = \frac{-56}{-7}$$

$$\Rightarrow \boxed{x = 8}$$

Check!

$$\textcircled{15} \quad -\underline{2x} + 8 + \underline{x} = 12x - 3x + 28$$

$$-x + 8 = 9x + 28$$

$$\cancel{-x} + \cancel{x} + 8 = 9x + \cancel{x} + 28$$

$$8 - 28 = 10x + \cancel{28} - \cancel{28}$$

$$\frac{-20}{10} = \frac{10x}{10}$$

$$\boxed{x = -2}$$

Check!

$$(16) \quad -5(y-3) + 4(y-2) = 32$$

$$\underline{-5y} + 15 + \underline{4y} - 8 = 32$$

$$-y + 7 = 32$$

$$-y = 32 - 7$$

$$-y = 25$$

$$\boxed{y = -25}$$

Check!

$$\begin{array}{r} D \quad \checkmark \\ C \quad \checkmark \\ I \\ C \\ D \\ 32 \\ 7 \\ \hline 25 \end{array}$$

$$(17) \quad -5(5x+3) = 7-6x$$

$$-25x - 15 = 7 - 6x$$

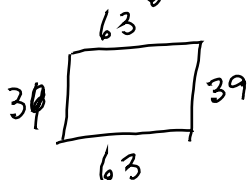
$$\cancel{-25x} + \cancel{25x} - 15 = 7 - 6x + 25x$$

$$-15 = 7 + 19x$$

$$-15 - 7 = \cancel{7} - \cancel{7} + 19x$$

$$\begin{array}{r} \boxed{\begin{array}{r} -22 \\ \hline 19 \end{array}} = \frac{19x}{19} \\ \boxed{\begin{array}{r} -1 \frac{3}{19} \end{array}} = x \end{array}$$

(18) Perimeter of a box : length = 63 in,
width = 39 in



$$P = 2l + 2w$$

$$P = 2(63) + 2(39)$$

$$P = 126 + 78 = \boxed{204 \text{ in}}$$

Perimeter is
204 in

(19)

Volume ?

width = 5 ft
length = 7 ft
height = 3 ft

$$V = w \cdot l \cdot h$$

$$V = 5(7)(3) = 35(3) = 105 \text{ ft}^3$$

The volume is 105 ft³

(20)

Given angle of 72°

C - 90°
S - 180°

(a)

complement angle?

$$90^\circ - 72^\circ = 18^\circ$$

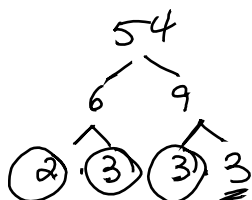
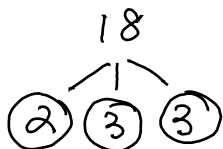
(b)

supplement

$$180^\circ - 72^\circ = 108^\circ$$

(21)

LCM 54, 18



$$LCM = 2 \cdot 3 \cdot 3 \cdot 3$$

$$LCM = 54$$

(22)

Change $-\frac{56}{14} = -\frac{1.8}{1.2} = -4$

(23)

$$9\frac{3}{8} = \frac{9 \cdot 8 + 3}{8}$$

$$= \frac{72 + 3}{8} = \frac{75}{8}$$

$$(24) \quad -\frac{225}{375} = -\frac{\cancel{9} \cdot \cancel{25}}{\cancel{15} \cdot \cancel{25}} = -\frac{9}{15} = -\frac{\cancel{3} \cdot \cancel{3}}{\cancel{5} \cdot \cancel{3}} = \boxed{-\frac{3}{5}}$$

$$25 \overline{) 225} \quad \begin{array}{r} 9 \\ 25 \overline{) 225} \\ \underline{225} \end{array}$$

$$25 \overline{) 375} \quad \begin{array}{r} 15 \\ 25 \overline{) 375} \\ \underline{-25} \\ 125 \end{array}$$

Perform the indicated operations

$$(25) \quad -\frac{7}{5} \cdot \left(-\frac{25}{4}\right) = + \frac{7 \cdot 25}{5 \cdot 4} = \frac{\cancel{7} \cdot \cancel{5} \cdot \cancel{5}}{\cancel{5} \cdot 4} = \boxed{\frac{35}{4}}$$

$$= \boxed{8 \frac{3}{4}}$$

$$(26) \quad \frac{3}{5} \div \left(-\frac{18}{1}\right) = -\frac{3}{5} \cdot \frac{1}{18} = -\frac{\cancel{3} \cdot 1}{5 \cdot \cancel{3} \cdot 6} = \boxed{-\frac{1}{30}}$$

$$(27) \quad 2\frac{5}{7} \div 2\frac{1}{9} =$$

$$\frac{19}{7} \div \frac{19}{9} =$$

$$\frac{\cancel{19}}{7} \cdot \frac{9}{\cancel{19}} = \boxed{\frac{9}{7}} = \boxed{1 \frac{2}{7}}$$

$$(28) \quad -\frac{2}{19} + \left(-\frac{1}{3}\right) = -\frac{2 \cdot 3}{19 \cdot 3} - \frac{1 \cdot 19}{3 \cdot 19}$$

$$= -\frac{6}{57} - \frac{19}{57}$$

$$= \boxed{-\frac{25}{57}}$$

$$(29) \quad 7\frac{10}{7} + \frac{9}{7} \quad \text{LCD} = 7$$

$$\frac{70}{7} + \frac{9}{7} = \boxed{\frac{79}{7}} = \boxed{11\frac{2}{7}}$$

$$(30) \quad 8\frac{9}{8} - \frac{3}{8} \quad \text{LCD} = 8$$

$$\frac{72}{8} - \frac{3}{8} = \frac{69}{8} = \boxed{8\frac{5}{8}}$$

$$8 + 1 - \frac{3}{8} = 8 + \frac{8}{8} - \frac{3}{8} = \boxed{8\frac{5}{8}}$$

$$(31) \quad 9\frac{1}{7} - 3\frac{3}{14}$$

$$9 + \frac{1}{7} - 3 - \frac{3}{14}$$

$$6 + \frac{1 \cdot 2}{7 \cdot 2} - \frac{3}{14}$$

$$6 + \frac{2}{14} - \frac{3}{14}$$

$$6 - \frac{1}{14}$$

$$5 + \frac{14}{14} - \frac{1}{14}$$

$$\boxed{5\frac{13}{14}}$$

$$(32) \quad \frac{5}{7} - \left(-\frac{5}{14}\right)$$

$$\frac{2 \cdot 5}{2 \cdot 7} + \frac{5}{14}$$

$$\frac{10}{14} + \frac{5}{14} = \boxed{\frac{15}{14}} = \boxed{1 \frac{1}{14}}$$

$$(33) \quad \frac{20, \frac{4}{1} - \frac{3}{5} \cdot 20}{20, \frac{5}{1} + \frac{1}{4} \cdot 20} =$$

$$LCD = 5 \cdot 4 = 20$$

$$\frac{80 - 12}{100 + 5} = \frac{68}{105}$$

$$(34) \quad \frac{5}{7} \cdot \frac{7}{15} \div \frac{1}{6}$$

$L \rightarrow R$

always Division FIRST

$$\frac{5}{7} \cdot \frac{7}{15} \div \frac{1}{6} = \frac{5}{15} \cdot \frac{6}{1} = \frac{30}{15} = \boxed{2}$$

$$(35) \quad \text{solve}$$

$$\frac{8 \cdot x}{8} + \frac{3^8}{1} = \frac{1 \cdot 8^4}{2} \quad LCD = 8$$

$$x + 24 = 4$$

$$x + \cancel{24} - \cancel{24} = 4 - 24$$

$$\boxed{x = -20}$$

Check!

(36)

$$\frac{x}{7} = 1 - \underbrace{18 \div 3}$$

$$\frac{x}{7} = 1 - 6$$

$$\cancel{7} \cdot \frac{x}{\cancel{7}} = -5 \cdot 7$$

$$\boxed{x = -35}$$

(37)

Juanita earns \$12.23 per hour @ her job. She worked 16 hours last week. Calculate Juanita's pay before taxes.

$$\begin{array}{r} 12.23 \\ \times 16 \\ \hline 7338 \\ 12230 \\ \hline 195.68 \end{array}$$

Juanita's pay is
\$195.68 before taxes

(38)

You earn \$160 a day on a job. If you leave work early for a doctor's appointment and work $\frac{5}{8}$ of the day, how much did you earn that day?

$$160 \cdot \frac{5}{8} = \frac{8 \cdot 20 \cdot 5}{8} = 100$$

You will earn \$100

Perform the indicated operations:

$$(39) \quad 15.05 + \underline{(-2.23)} + \underline{(-3.19)} =$$

$$15.05 - \underline{2.23 - 3.19} =$$

$$15.05 - 5.42 =$$

$$\boxed{9.63}$$

$$\begin{array}{r} 2.23 \\ + 3.19 \\ \hline 5.42 \end{array}$$

$$\begin{array}{r} 15.05 \\ - 5.42 \\ \hline 9.63 \end{array}$$

$$(40) \quad -1.2365 - \underline{(-0.9823)} =$$

$$-1.2365 + 0.9823 =$$

$$= \boxed{-0.2542}$$

$$\begin{array}{r} 1.2365 \\ - 0.9823 \\ \hline 0.2542 \end{array}$$

$$(41) \quad 0.4 \times \underline{(-0.002)} =$$

$$\boxed{-0.0008}$$

$$(42) \quad \text{Round } 32.4\overset{+1}{5}8$$

$$8 > 5$$

$$\approx \boxed{32.46}$$

$$(43) \quad 875.0 \div \underline{(-2.5)} = \boxed{-350}$$

$$\begin{array}{r} 25 \overline{) 8750.} \\ \underline{75 \downarrow} \\ 125 \\ \underline{125} \\ 0 \end{array}$$

(44)

$$\begin{array}{r} 0.303 \\ 52 \overline{) 15.756} \\ \underline{- 156} \downarrow \downarrow \\ 156 \\ \underline{- 156} \\ 0 \end{array}$$

$$\boxed{0.303}$$

- (45) Tom went shopping and bought an iPod for \$199.99 and a movie for \$15.50 and then bought a skateboard for \$42.29. What was the total amount he spent?

$$\begin{array}{r} 199.99 \\ 15.50 \\ 42.29 \\ \hline 257.78 \end{array}$$

$$\boxed{\text{He spent } \$257.78}$$

(46)

Decimal? $\frac{3 \text{ in}}{8 \text{ out}} = \boxed{0.375}$

$$\begin{array}{r} 0.375 \\ 8 \overline{) 3.000} \\ \underline{- 24} \\ 60 \\ \underline{- 56} \\ 40 \end{array}$$

(47)

Solve

$$\frac{75}{123} \rightarrow \frac{5}{x}$$

$$x = \frac{5 \cdot 123}{75} = \frac{123}{15} = 8 \frac{3}{5} = \boxed{8 \frac{1}{5}}$$

$$x = \frac{5 \cdot 123}{75}$$

- (48) It takes Mike 24 minutes to type and spell check 14 pages. Find how many pages he can type and spell check in 3.5 hours. Round your answers to the nearest tenth if necessary.

$$\frac{x \text{ pages}}{14 \text{ pages}} \left(\frac{3.5 \text{ hours}}{24 \text{ minutes}} \right) = 210 \text{ minutes}$$

$$\frac{x}{14} \rightarrow \frac{210}{24}$$

$$x = \frac{210 \cdot 14}{24}$$

$$x = \frac{3 \cdot \cancel{2} \cdot 35 \cdot \cancel{2} \cdot 7}{3 \cdot \cancel{2} \cdot \cancel{2} \cdot \cancel{2}}$$

$$x = \frac{245}{2} = \boxed{122.5}$$

$$\begin{array}{r} 3.5 = \frac{60}{60} \\ \frac{30}{210} \end{array}$$

$$210 = 3 \cdot 70$$

$$3 \cdot 35 \cdot 2$$

$$\frac{35}{7} = 3$$

He will ~~spend~~ type 122.5 pages in 3.5 hours

(49) solve $(-2.7x) + 4.9x = -13.2$

$$\begin{array}{r} 22 \overline{) 132.} \\ \underline{132} \\ 0 \end{array}$$

$$-2.7x + 4.9x = -13.2$$

$$+ 2.2x = -13.2$$

$$x = \frac{-13.2}{2.2} = -\frac{132}{22}$$

$$\boxed{x = 6} \quad \text{Check!}$$

$$\begin{array}{r} 4.9 \\ -2.7 \\ \hline 2.2 \end{array}$$

(50) Write 2.9% as a decimal

$$\cdot \frac{2.9}{100} = \boxed{0.029}$$

$$(51) \quad 38\% = \frac{38}{100} = \frac{\cancel{2}19}{\cancel{2}50} = \boxed{\frac{19}{50}}$$

(52) Change $2\frac{3}{5}$ to a percent.

$$2\frac{3}{5} \cdot 100\%$$

$$\frac{13}{5} \cdot 100\%$$

$$1 = 100\% \\ 2 = 200\%$$

$$\frac{1300}{5}\% = \boxed{260\%}$$

(53) 144 is what ⁴⁸ percent of 300?

$$144 = \frac{x}{100} \cdot \overset{3}{\cancel{300}}$$

$$\frac{144}{3} = \frac{3x}{3} \Rightarrow \boxed{x = 48}$$

$$\boxed{48\%}$$

(54) Find 4.2% of 310.

$$x = \frac{4.2}{100} \cdot 310 = \frac{4.2(31)}{10}$$

$$x = \frac{130.2}{10} = \boxed{13.02}$$

$$\begin{array}{r} 4.2 \\ 31 \\ \hline 42 \\ 126 \\ \hline 1302 \end{array}$$

(55)

Mean?

92[✓], 83[✓], 70[✓], 78[✓], 85[✓]

$$\text{mean} = \frac{408}{5} = \boxed{81.6}$$

$$\begin{array}{r} 1 \\ 92^{\checkmark} \\ 83^{\checkmark} \\ 70 \\ 78 \\ 85^{\checkmark} \\ \hline 408 \end{array}$$

Good luck!